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# MEDICAL NEWS LETTER

Rear Admiral Bartholomew W. Hogan MC USN - Surgeon General
Captain Donald R. Childs MC USN - Editor

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# HISTORICAL FUND
of the
NAVY MEDICAL DEPARTMENT

A committee has been formed with representation from the Medical Corps, Dental Corps, Medical Service Corps, Nurse Corps, and Hospital Corps for the purpose of creating a fund to be used for the collection and maintenance of items of historical interest to the Medical Department. Such items will include, but will not be limited to, portraits, memorials, etc., designed to perpetuate the memory of distinguished members of the Navy Medical Department. These memorials will be displayed in the Bureau of Medicine and Surgery and at the National Naval Medical Center. Medical Department officers, active and inactive, are invited to make small contributions to the fund. It is emphasized that all donations must be on a strictly voluntary basis. Funds received will be deposited in a Washington, D. C. bank to the credit of the Navy Medical Department Historical Fund, and will be expended only as approved by the Committee or its successor and for the objectives stated.

It is anticipated that an historical committee will be organized at each of our medical activities. If you desire to contribute, please do so through your local historical committee or send your check direct, payable to Navy Medical Department Historical Fund, and mail to:

Treasurer, N. M. D. Historical Fund
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## Number One Killer - 1958

The Number One Killer of naval personnel—motor vehicles—took an even greater toll in 1958 than expected. Death could hardly have come more unexpectedly to the victims themselves. In many cases the serviceman was the innocent victim who could have avoided catastrophe only by keeping off the highways. In other instances a little courtesy or just plain patience might have been mustered. In many instances a few hours of shuteye in a more appropriate place than at the wheel of an automobile would have been sufficient.

While there were fewer persons involved in motor-vehicle accidents in 1958, unfortunately, a larger proportion of those that were involved were killed.

Both the admission and death rates for enlisted personnel were over three times those for officers. Similarly, Marine Corps personnel had higher rates than Navy.

Sicklist admissions resulting from motor-vehicles accidents are most numerous over the weekend period—Saturday through Sunday. Year after year, Saturday is the day on which motor-vehicle accidents take the most lives of naval personnel—nearly one-fourth.

In 1958, personnel stationed in three naval districts—the 5th, 6th, and 11th—accounted for nearly two-thirds of all motor-vehicle-accident admissions and deaths occurring among continental-stationed personnel. Of the 391 persons who died in continental United States, 42 were stationed at Camp Lejeune, N. C.; 33 at Camp Pendleton, Calif.; 15 at Naval Air Station, Miramar, San Diego, Calif.; 12 at Marine Corps School, Quantico, Va.; and 11 at Marine Corps Air Station, El Toro, Santa Ana, Calif.

Nearly 8 out of 10 injuries involved automobiles, and one in every 10 involved a motorcycle. Running off the roadway was the most frequent causative factor—33-1/3%.

The admission rate for the 20 - 24 age group was 70 percent higher than the next group.

IN BRIEF

6,543 Navy and Marine Corps personnel were injured in motor-vehicle accidents during 1958.

565 DIED.
273,279 SICK DAYS were accumulated.
749 were on the SICKLIST each day of the year (average).
90% were on LEAVE or LIBERTY at the time of their accident (approximate).
75% were in PASSENGER cars.

11% were involved in MOTORCYCLE accidents.
The estimated COST to the Government was over $20,000,000.

Continued and intensified effort must be put forth by every individual in the Navy to make further progress and to cut down the tragic loss of life. (Excerpts from article, Motor Vehicle Accidents: 1958, Statistics of Navy Medicine, 15: 6-13, June 1959)

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## Blood Pressure in Persons Aged 20 to 106 Years

The characteristics of the frequency distribution curves of blood pressure in the apparently healthy, white, adult population of the United States, male and female, between 20 and 106 years is presented. The analysis makes available a knowledge of the frequency with which each blood pressure value is encountered. Conversely, the proportion that may be expected to exhibit various levels of pressure, the changes within the entire spectrum of pressure incident to aging and the differences between the sexes, and the extent of variability which is found among apparently healthy people is also learned. From the curves obtained, a range of pressure is delineated which may be considered "normal" for the purposes of clinical medicine.

Questions which immediately arise are: (1) What constitutes the "normal" range? (2) Do all persons within this range of pressure experience the same longevity? (3) Is there an optimum or ideal pressure? In general, statisticians have shown that longevity decreases as blood pressure rises and that values somewhat below the average appear to be associated with the lowest mortality rate and greatest longevity.

The determination of whether blood pressure rises with age in all people is also a problem. The bulk of clinical investigations suggests that this is so, although the conclusion is contested by some investigators who insist that any rise in pressure with age is evidence of abnormality.

In addition to these questions, there remain practical problems of the management of the individual patient, such as: (1) Who is to be treated? (2) What level of pressure at any age should always be considered abnormal even in the absence of organic changes? (3) Can a single standard for hypertension be applied to both sexes at all ages? (4) Will a person with "normal" pressure who attains old age ever present a hypertensive x-ray picture or electrocardiogram?

The authors considered that many of these problems were answered by their study or that, at least, phases of the problems were brought into clearer focus. The data was drawn from a study of a few years ago of blood pressure in 74,000 persons, 16 to 64 years of age, and from a recently completed survey in 5,757 persons 65 to 106 years of age.

Among males, the mean systolic pressure increases gradually during each decade up to the fortieth year (about 3 mm. per decade). After 40, the rate or degree of rise increases until the seventh decade. After that, the mean remains constant. Among women, the pattern of rise of mean systolic pressure with age is somewhat different. In the 20 to 24-year group, the mean systolic pressure is 116 mm. Hg which is 7 mm. lower than in men of the same age. However, during the following two decades, the rise is much greater among women, so that after the age of about 45 years the mean systolic pressure is higher in women. The disparity continues to widen until the age group of 70 to 74 years when the highest mean pressure is reached; in females, this is 156 mm. Hg, and in males, 145 mm. Hg. Thereafter, a gradual decline begins so that in extreme old age (95 to 106 years), the female pressure has fallen to 149 mm. Hg and is only 3 mm. higher than that in males. Accompanying the rise in mean systolic pressure is an increase in the total range of pressure.

There is a progressive diminution in the frequency of low systolic pressures, and a progressive increase in the frequency of systolic pressures of about 150 mm. Hg. After the age of 65 years, no further change occurs. Occasional values of 260 or 280 mm. Hg were recorded and were the extreme variants (Table I). In previous studies the authors employed a range composed of the middle 80% of values (40% on either side of the mean) as the possible limits of "normal" blood pressure. It was believed that pressures falling within these limits—if not accompanied by evidence of cardiovascular disease—need not be considered for antihypertensive therapy. As both the mean pressure and standard deviation increased with age until about 65 years, the limits of the middle 80% range became higher and the range became wider. The permissible range of variation approximately doubled.

A wider range, approximately the middle 95%, was determined, the table of which is reproduced. Pressures beyond this limit were considered by the authors to deviate so markedly from the average as to constitute by themselves an indication for antihypertensive therapy. This range also increases considerably with age up until 65 and then shows no further alteration. The range is wider and the upper limit is higher in women than in men after the forty-fifth year. (Table II)

The observations that the blood pressure remains relatively constant after the age of about 70 years has given food for thought. This stabilization is probably the result of an achieved balance between the tendency of pressure to rise with age and the counteracting influence of a selective mortality which reduces the number of persons with higher pressures.

These alterations which occur up to about 70 years have two differing interpretations. One group contends that the pressure of "normal" persons does not alter with advancing age, but the age-specific changes are due to the appearance of "hypertonic" or diseased individuals. The other view, supported by almost all recent clinical studies, considers that "normal"

## TABLE I

**Mean Blood Pressure and Standard Deviations in Apparently Healthy Persons, 20 to 106 Years of Age**

| Age Group | MALES | | FEMALES | |
|---|---|---|---|---|
| | Systolic* | Diastolic* | Systolic* | Diastolic* |
| 20- 24 | 123±13.7 | 76± 9.9 | 116±11.8 | 72± 9.7 |
| 25- 29 | 125±12.6 | 78± 9.0 | 117±11.4 | 74± 9.1 |
| 30- 34 | 126±13.6 | 79± 9.7 | 120±14.0 | 75±10.8 |
| 35- 39 | 127±14.2 | 80±10.4 | 124±13.9 | 78±10.0 |
| 40- 44 | 129±15.1 | 81± 9.5 | 127±17.1 | 80±10.6 |
| 45- 49 | 130±16.9 | 82±10.8 | 131±19.5 | 82±11.6 |
| 50- 54 | 135±19.2 | 83±11.3 | 137±21.3 | 84±12.4 |
| 55- 59 | 138±18.8 | 84±11.4 | 139±21.4 | 84±11.8 |
| 60- 64 | 142±21.1 | 85±12.4 | 144±22.3 | 85±13.0 |
| 65- 69 | 143±26.0 | 83± 9.9 | 154±29.0 | 85±13.8 |
| 70- 74 | 145±26.3 | 82±15.3 | 159±25.8 | 85±15.3 |
| 75- 79 | 146±21.6 | 81±12.9 | 158±26.3 | 84±13.1 |
| 80- 84 | 145±25.6 | 82± 9.9 | 157±28.0 | 83±13.1 |
| 85- 89 | 145±24.2 | 79±14.9 | 154±27.9 | 82±17.3 |
| 90- 94 | 145±23.4 | 78±12.1 | 150±23.6 | 79±12.1 |
| 95-106 | 146±27.5 | 78±12.7 | 149±23.5 | 81±12.5 |

*±1 Standard deviation.

pressure increases with advancing age and that the entire range of pressure rises, not merely the higher values.

Studies by life insurance companies have demonstrated that, excluding other factors, life expectancy varies inversely with the height of blood pressure. This selection factor serves to decrease relatively the number of older persons with high pressures and to increase the number with lower pressures. Such "normal" subjects should form an increasingly large proportion of the aging population due to the higher mortality of the others. Exactly the reverse seems to be true—such individuals become increasingly less numerous.

TABLE II

**Upper Limit of Middle 95% Range of Blood Pressures ($\pm 2\sigma$) in Apparently Healthy Persons, 20 to 106 Years of Age**

| Age Group | MALES | | FEMALES | |
|---|---|---|---|---|
| | Systolic | Diastolic | Systolic | Diastolic |
| 20- 24 | 150.4 | 95.8 | 139.6 | 91.4 |
| 25- 29 | 150.2 | 96.0 | 139.8 | 92.2 |
| 30- 34 | 153.2 | 98.4 | 148.0 | 96.6 |
| 35- 39 | 155.4 | 100.8 | 151.8 | 98.0 |
| 40- 44 | 159.2 | 100.0 | 161.2 | 101.2 |
| 45- 49 | 163.8 | 103.6 | 170.0 | 105.2 |
| 50- 54 | 173.4 | 105.6 | 179.8 | 108.8 |
| 55- 59 | 175.6 | 106.8 | 181.8 | 107.6 |
| 60- 64 | 184.2 | 109.8 | 188.6 | 111.0 |
| 65-106 | 190 | 102 | 212 | 113 |

Whether the age-specific changes in the frequency distribution curve are due solely to the appearance of atherosclerosis or to the "normal aging process" per se is a moot question. The histologic change affects the entire aging population and presently cannot be considered an abnormal process or a disease. The authors believe that the physiologic aging process produces blood pressure elevations in every person to some degree. They also believe

that those with initially higher pressures experience a more rapid and extreme rise with advancing age than those with initially lower pressures.

How do these data influence the view of the therapy of hypertension? Clinical evidence indicates that medical therapy of severe hypertension lowers mortality, decreases complications, reduces heart size, improves electrocardiograms and arrests deterioration of renal function. Similar clear-cut evidence of the value of therapy of mild or moderate hypertension (higher than the middle 80%) is not available at this time.

In the present era, with effective and relatively safe antihypertensive therapy available, there should be little difference of opinion concerning the necessity for therapy in all individuals whose pressures are higher than the middle of the 95% range, even in the absence of clinical evidence of organic changes. Also, antihypertensive therapy is indicated in all individuals who manifest an abnormal electrocardiogram, x-ray picture, or urinalysis; who have a history of a previous cerebrovascular accident or congestive heart failure; or who demonstrate funduscopic changes in the presence of a pressure lower than the 95% limit or even lower than the upper limit of the middle 80% range.

Stressing that therapy must be individualized and observed and the entire clinical picture appraised, the authors believe that individuals 60 years and over, showing pressures higher than the middle 80% range, also may be considered for antihypertensive therapy. (Lasser, R. P., Master, A. M., Observation of Frequency Distribution Curves of Blood Pressure in Persons Aged 20 to 106 Years: Geriatrics, 14: 345-360, June 1959)

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## Peptic Ulcer and Pulmonary Emphysema

Considering that most surgeons were unaware of the high incidence of peptic ulcer disease and pulmonary emphysema, the authors undertook the review of their experience with these associated conditions. They also studied the pathogenic factors of the two conditions with the clinical implications of their findings.

From various series, the incidence of peptic ulcer disease in patients with emphysema ranges from 15 to 24%. The converse relationship—the presence of emphysema in patients with peptic ulcer disease, reveals an incidence two to three times that found in the nonulcerous controls studied by the authors. In the former group, 80% of the ulcers were located in the duodenum being characterized by insidious onset and progress, and explosive development of complications.

Concurrence of these conditions presents certain complications in relation to surgical treatment of peptic ulcer disease. These include problems in relation to anesthesia; desirability of frequently performing

tracheostomy to aid in combating the increased physiologic dead space, bronchial secretions, and ineffective bronchial clearing; and the disturbed respiratory compensation to metabolic alkalosis frequently resulting in oxygen desaturation and even clinical cyanosis.

Little objective evidence exists to support any of the numerous factors that have been suggested as producing peptic ulceration in patients with pulmonary emphysema. However, the evidence in dogs that the volume of secretion varies with the carbon-dioxide-combining power of the blood has been noted. It has been postulated that the elevated blood carbon dioxide content displaces chloride ions and makes them more available for utilization in the production of gastric hydrochloric acid. Apperly believes that the mild hyperventilation that occurs in tropical climates produces a depression of the blood carbon dioxide content and, thus, in some degree protects against hypersecretion of acid and ulceration.

It is possible that actual ulceration may be due to local mucosal hypoxia with subsequent resistance to ulceration. However, because hypoxia is a late complication of emphysema, it is not considered to be a significant factor.

Some observers have proposed the etiological factor of polycythemia in relation to development of peptic ulcer disease. These same observers question this factor since either elevating or lowering the hematocrit will diminish gastric acidity.

Other factors of possible relationship include the emotional response of patients to the crippling features of pulmonary emphysema, frequently increased smoking in the tense emphysematous patient, and stress of chronic anoxia which may precipitate excessive adrenocorticotrophic response and resultant ulceration.

Regardless of the factors of pathogenesis, the clinician must be alert to the possible occurrence of peptic ulcer in the patient with emphysema, even in the presence of minimal gastrointestinal symptoms. Because the peptic ulcer in these patients is often so resistant to the usual forms of medical therapy and so disposed to the development of serious complications, an aggressive therapeutic attitude is mandatory. More liberal indications for surgery might be adopted, as delay may not only fail to improve the ulcer, but may make a difficult operative problem prohibitively dangerous. When surgery is indicated, tracheostomy is often lifesaving.
(Silen, W., Brown, W.H., Eiseman, B., Peptic Ulcer and Pulmonary Emphysema: A.M.A. Arch. Surg., 78: 897-902, June 1959)

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Use of funds for printing this publication has been approved by the Director of the Bureau of the Budget, 19 June 1958.

## Nutrition by the Intravenous Route

Although significant advances have been made in surgical techniques, it is generally accepted that the greatest chance for a successful operation occurs when the patient is in the best possible condition prior to the procedure and is given optimal support during the postoperative period. One of the most important facets of adequate supportive care is proper nutrition. In many patients, the oral route of nutrition cannot be utilized and the needs of the patient must be met parenterally. Recent work of several groups and the present report contribute to the knowledge and general effectiveness of nutritional management of the patient.

General protein deficiency is commonly referred to as hypoproteinism and is not to be confused with hypoproteinemia, as protein deficiency may occur in the face of a normal total serum protein concentration. The manifestations are varied and undesirable, including: (1) diminished tolerance to blood loss with increased susceptibility to shock, (2) lowered antibody production with impaired wound healing, and (3) diminution of plasma volume with tissue edema.

The nutritional requirements for the surgical patient are determined by: (1) previous nutritional state of the patient, (2) nature and severity of the pathologic abnormality, (3) amount and character of the nutrient which is being lost from the body, and (4) anticipated duration of the injury or disease.

Approximately 1 gm. of protein per kg. and 30 calories per kg. are required daily to keep the normal patient at bed rest in positive protein balance. Thirty calories should be allowed for each gm. of protein to prevent utilization of protein for energy requirements. Mineral and vitamin requirements must also be maintained.

Following trauma, surgery, burns, or other forms of severe stress, the nutritional demands increase in proportion to the severity of the condition, reaching levels about three times the basic requirement. Among popular misconceptions is the thought that a total serum protein concentration of 6 gm. percent or higher rules out protein deficiency, or that 1 gm. of protein per kg. per day is adequate for repletion therapy.

Protein may be supplied parenterally by the administration of whole blood, plasma, albumin, and protein hydrolysates. The first is a poor source of protein and calories, is expensive, and carries the potential of transfusion reaction. Plasma and albumin are impractical because of expense, and are not sources of protein readily available for metabolism. The most economical and utilizable source of protein, therefore, is the hydrolysates. The total nitrogen of a protein hydrolysate solution is somewhat less than the nitrogen of protein from which it was made because the process of hydrolysis involves the addition of water. Thus, one gm. of protein hydrolysate is equivalent to 0.75 gm. of protein. Reactions are

currently uncommon and minimal in degree with exercise of certain precautions in administration.

The important aspect of administering protein hydrolysate is that the administered protein will not be used with maximal efficiency unless caloric equilibrium is achieved. Calories may be supplied intravenously by the use of carbohydrate solutions, alcohol, or fat.

Dextrose has been the popular carbohydrate for intravenous use with a current trend toward invert sugar and fructose solutions because they are more rapidly utilized than dextrose. Fructose, in particular, possesses many advantages over dextrose with one disadvantage in that it does not relieve the signs and symptoms of insulin-induced hypoglycemia.

Alcohol is not stored in the body and is completely metabolized, producing heat and energy, and sparing protein. In limited quantity, alcohol is a satisfactory source of parenteral calories.

The obvious solution to the problem of supplying caloric requirements intravenously is the use of a fat emulsion because fat contains 9 calories per gm. Various developments have been made in recent years in regard to this source of energy and the one of the current report is a preparation of cottonseed oil, dextrose, soybean phosphatide and Pluronic F68 as a stabilizer (Lipomul). Each 500 ml. supplies approximately 800 calories.

During a 2-year period, 540 units of this emulsion were given to 42 patients with few side effects, all of which were minor. Some metabolic balance studies were carried out with results indicating that the emulsion was well utilized and capable of exerting a nitrogen-sparing effect.

In view of previous reports of disturbed liver function, the authors studied the effects of large quantities of intravenous fat emulsion, performing a battery of liver function tests and coagulograms at regular intervals during long-term therapy. Twenty-two patients received a total of 481 units, the minimum dose being 10 units. They received an average of 1,200 ml. of the emulsion intravenously, and protein and supplemental calories orally. Those patients who received 10 to 14 units showed no untoward effects while most of those who received larger doses showed an appreciable fall in the hematocrit. In all patients there was an increase in bromsulfalein retention. Other variations were observed including some abnormalities of the blood-clotting phenomenon. The abnormalities in liver function and coagulogram changes reverted to normal after cessation of the infusions.

From this study and data of other investigators the best suggestions concerning the use of this intravenous fat emulsion at the present time are: (1) Hematocrit determinations should be performed every two or three days during therapy. (2) Ten to 14 units given at the rate of one per day are safe. (3) If more than 10 units are given, the coagulogram should be followed at three-day intervals and, when abnormalities occur, therapy should be discontinued. Resumption of the emulsion may follow if desired after the coagulogram returns to normal.

During the preoperative and postoperative stages, the needs of the patient should be computed and observations made concerning the effectiveness and adequacy of the patient's total intake. Obviously, the best method of providing these needs is by an adequate diet, supplementary feedings being employed as needed. If the oral intake is deficient and feeding through a nasogastric tube is not possible nor feasible, the intravenous route must be employed. A liter of protein hydrolysate-fructose-alcohol solution will provide 800 calories and 37 gm. of protein. When additional calories are needed, 500 ml. of an intravenous fat emulsion will provide 800 calories. Combinations of these preparations can be tailored to fit individual requirements.

It is important to maintain nutrition in well nourished individuals as well as to correct malnutrition in depleted patients. If proteins and calories are properly given, the postoperative and convalescent period is shortened, complications are fewer, and mortality is reduced. The insufficient caloric and protein content of the routine liquid, soft, or bland diet that is commonly prescribed is an insult superimposed on the loss of nitrogen that inevitably follows surgical or other stressful procedures. When it is anticipated that parenteral feedings will be required for more than 3 days, adequate quantities of proteins and calories should be given intravenously beginning with the first postoperative day. (Artz, C. P., Newer Concepts of Nutrition by the Intravenous Route: Ann. Surg., 149: 841-851, June 1959)

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## Dupuytren's Contracture

The entity, Dupuytren's contracture, is a controversial and incompletely understood problem—except for the diagnosis—with broad differences of opinion in relation to etiology, pathogenesis, and therapy. A plan of therapy of the author based upon a new concept of the pathogenesis has been associated with superior results achieved with less stress for both patient and surgeon than experienced by the routine use of radical aponeurosectomy.

The incidence of the contracture is higher in men than in women, the ratio being approximately seven to one. While the onset of typical cases may develop any time after the second decade of life, the resulting nodules occasionally lie dormant so that there is little contracture and disability until a later decade. In the author's series of 154 cases since 1936, the oldest patient was 85 years old, the youngest 21, with an average of 56.5 years for men and 61.1 years for women. In 36 there was a definite hereditary factor.

The initial symptom was usually one or more nodules in the ulnar half of the palm or the volar aspect of the proximal one-half of one or more

fingers. With the passage of time, involution occurred, the nodule tended to flatten, and the associated proximal cord became rounder and larger. As nodular involution progressed, cords and contractures evolved. Pain was seldom a symptom, although occasionally there was slight to moderate pain and tenderness at the sites of nodules.

Flexion contractures of the fingers created most of the disability and had their highest incidence in the little and ring fingers. The rate of contracture proved extremely variable. There were instances when a finger became sharply flexed by the contracting nodules within a few months' time; in others the process of involution was so protracted that a period of many years was involved. The actual contracting process generally occurred by irregular steps interspersed by periods of quiescence.

Despite investigation over more than 100 years, the etiology of this process remains elusive. Trauma appears to head the list of factors with its actual role—causative or aggravating—being debatable. The hereditary factor is the most definite and best established of all potential etiological factors. The number of other alleged factors is legion.

Identification of the fascial fibrogenic nodule as the essential lesion, in addition to the propensity of the nodule for recurrence after incomplete removal, would appear to favor the neoplastic theory. Histologically, the nodule has a fibromatous-like appearance during the proliferative stage. Therefore, it is tempting to consider the disease as a fascial dysplasia. The dividing line is by no means sharp. The author believes that neither chronic inflammation, nor trauma, nor neurological or psychological factors represent primary etiologic agents in this disease.

Studying the tissues from more than 200 hands and 28 feet, the author identified the initial lesion as a focus of proliferating fibroblasts, with multiple foci being the rule. This focus was observed to create a palpable nodule subsequently forming the fibrous cords which are characteristic and intimately related to the involution of the nodule. All tissues identified with Dupuytren's contracture were classified as (1) essential fibrous nodules, (2) reactive tissues, and (3) residual tissues. The pathogenesis is considered to be divided into three stages: proliferative, involutional (contracting), and residual.

The Proliferative Stage. The nodule is a focus of fibroblasts similar to a fibroma. Early, the cells form a large portion of the tissue, the collagen a minimal portion. In this stage, the fibroblasts do not align themselves with lines of stress and have no purposeful arrangement. Solitary or multiple nodules may appear at various locations in the palm and fingers and in the sole of the foot.

While the nodules appear to originate in, or superficial to, the palmar fascia, they expand toward the surface, principally between the skin and the fascia creating a protruding mass easily identified by the palpating finger. A nodule, originating from fascia or aponeurosis, may grow by expansion

replacing subcutaneous adipose tissue and attach to or even displace deep layers of the skin. Thus, the stage is set for contraction of the involutional process to create a reactive fibrous cord. In the proliferative stage, the nodule is likely to be conspicuously vascular and the reactive tissue at the periphery to appear to be related to the blood vessels supplying it.

The Involutional Stage. The fibroblasts of the nodule align themselves with major lines of stress that pass through the nodules. The cells become mature, decrease in number, and collagen steadily increases. During this process contraction occurs. The conclusion was that contracture forms proximal to the nodule and represents reactive functional hypertrophy in response to repeated tension stresses on the band of fascia from which the nodule has taken its origin. Contractures take place only within the nodules and from involution of these foci of fibroplasia. No contracture appears to occur in the fascial cord—only hypertrophy—and are largest where they are subjected to the greatest tension stresses, as in the hands of heavy manual workers. At sites of little stress, there is little cord formation. Such sites are the lateral and medial aspects of the palm or fingers.

Whether a nodule will be capable of causing disabling contractures of a joint clearly depends on the location of the nodule. In general, the more proximal the location, the less potential the contracture. With every millimeter of contraction, a nodule may create several degrees of flexion contracture in a finger. A linear series of nodules thereby produces extensive deformity.

As the process of involution progresses, the nodule becomes less well defined until at the end of the process the nodule is no longer present or palpable. New nodules may appear at widely spaced periods with a wide variation in rate of involution.

The Residual Stage. With complete involution, the nodule disappears leaving only a focus of dense adhesions and the reactive proximal fibrous cord which is almost acellular and tendon-like. Where the nodule existed, the skin is fixed, drawn into folds, and securely fused to underlying fascia. Proximal to the contracted focus of skin is the clearly defined fibrous cord which extends to the apex of the palmar aponeurosis. When the cord is palpated, no nodules identified, and the contracture has not undergone recent change, it can be assumed that the process is completely involuted. At this stage the areas of uninvolved palmar fascia adjacent to the cords may atrophy and almost disappear. If the finger contracts completely into the palm where further stresses cease, the lack of stress is ultimately reflected by atrophy of the cord.

Therapy is to be based on the stage of development of the nodule, with the ideal treatment being one that would cause a prompt resolution of the nodule without its undergoing contracture. Various approaches, including ultrasonics and other physical therapy modalities, roentgen therapy, vitamin E, and corticosteroids have been tried. The results are confusing because no

recognition of the phases of nodular development has been made in evaluating results of treatment. When the contracture warrants, definitive treatment is surgical.

Because the author contends that the nodule is the essential lesion, it is his opinion that a radical excision of all of the palmar fascia and associated fibrous cords is not necessary. It is necessary only to completely excise the nodules. If the process is in a stage of nodule-cord units, operative procedures which do not include excision of the nodules will be followed by a partial recurrence of the contracture. If the nodules are completely excised and the fibrous cords are sectioned subcutaneously or by direct vision, recurrence will not take place unless there is subsequent development of new nodules. In the involutional stage, excision of the nodule is the most essential step in the operative procedure. Indications and contraindications for subcutaneous fasciotomy are delineated along with detailed descriptions of the surgical technique.

The author, reviewing the results of surgical treatment of his patients during the years of study, reported good results in 7 of 12 operated in the proliferative stage. Three of this group had fair results with slight recurrence of nodule formation at the operative site necessitating further surgery.

The contractures of the involutional stage were treated by a combination of palmar subcutaneous fasciotomy and excision of nodules. The results in 97 patients and 125 hands in 2 to 10 years were: good in 92 (73%), fair in 27 (21%), and poor in 6 (5%). The fair and poor results were generally caused by irreversible joint changes and recurrent nodules. Subcutaneous fasciotomy alone was carried out in the involutional stage in 15 patients (21 hands) with good results in 5, fair in 7, and poor in 9 patients. The 9 poor results could be attributed to leaving behind large nodules close to the proximal interphalangeal and metacarpophalangeal joints.

In the residual stage, subcutaneous fasciotomy of the palm—in addition to sectioning of digital fibrous cords—was carried out on 30 patients. Results were good in 37, fair in 6, and poor in 5 patients. The fair and poor results were caused principally by irreversible soft-tissue changes, although osteoarthritis played a significant part as the subjects were usually of the older age group. (Luck, J. V., Dupuytren's Contracture - A New Concept of the Pathogenesis Correlated with Surgical Management: J. Bone & Joint Surg., 41-A, 635-663, June 1959)

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## Apathetic Thyroidism

More than 20 years ago, Lahey called attention to a clinical variety of hyperthyroidism characterized by apathy rather than hyperactivity, to which he gave the name, "apathetic thyroidism."

The classic picture of Parry-Graves-Basedow disease is well known, and the literature abounds with descriptions of various atypical or "masked" varieties of the disease. However, the apathetic form is not well represented in the numerous reports.

The description of Hamburger and Lev has not been improved upon: ". . . men and women at or near the middle decade of life . . . individuals without exophthalmos, struma, or tachycardia . . . apathetic, listless, with masked facies, dulled eyes, quiet and insensitive . . . in striking contrast to the alert, restless, nervous, bright, prominent-eyed patient with (typical) hyperthyroidism." However, the various reports of Lahey describe in much greater detail the multiple-faceted picture. His observations indicate that in spite of appearance of less activity of the disease, these patients are often sicker and in a more precarious state than those with the overt form. In particular, he warns of the danger of unexpected death following surgery in this state.

The apathetic variation may be considered one of the "masked" forms which have usually been considered so because of (1) prominent signs of some coincidental disease or symptom complex, (2) prominence of the symptoms of one organ system, or (3) absence of some or most of the classic features.

Apathy, to the authors, represents a specific response to the hyperthyroid state, being manifested clinically by lethargy, placid facies, depressed mood and "mental and physical inertia"—in general, the opposite of the usual hyperkinetic type of thyrotoxicosis. It occurs more frequently in the elderly, in patients with absent palpable goiter or small nodular goiters, and in patients with prominent cardiovascular symptoms. Certain patients will present an apathetic facies but have tremor and hyperactive movements, while others may pass from one clinical picture to an opposite one.

Speculation as well as detailed study is sparse in relation to the pathogenesis of this manifestation of thyroid dysfunction. Brewster's group demonstrated that most of the physiologic effects of thyroxin-induced hyperthyroidism in dogs were abolished by total sympathetic blockade. However, there is no noted depression of protein-bound iodine and $I^{131}$ uptake values. It was concluded that sympathico-adrenal hormones, predominantly l-norepinephrine, are mediators of the physiologic response to hyperthyroidism, being augmented in their action by thyroxin.

In a recent report, it was shown that reserpine will produce marked amelioration of hyperthyroid symptoms. Certain patients were converted from a hyperkinetic state to an apathetic state while biochemical abnormalities persisted. This suggested that reserpine may effect a sympathetic blockade on certain centers in the diencephalon. Other work on animals has shown that atrophy of the adrenal gland and even necrosis of the zona fasciculata is the end result of experimentally induced hyperthyroidism.

Considering these various physiological factors, the authors were impressed by the concept of diencephalic-sympathetico-adrenocortical

exhaustion or failure as producing absence of the alarm or adaptation response in the apathetic hyperthyroid patient; or, the possibility that there is an individual metabolic derangement that causes a reversal of the usual cerebral stimulatory effect of hyperthyroid disease. (McGee, R. R., Whittaker, R. L., Tullis, I. F., Apathetic Thyroidism - Review of the Literature and Report of Four Cases: Ann. Int. Med., 50: 1418-1432, June 1959)

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## The Postmitral Commissurotomy Syndrome

A phasic recurrent fever occurring at variable times, mainly after mitral valve surgery, associated with incisional and/or pleuritic pain, has been called the postmitral commissurotomy syndrome. The etiology, unconfirmed, includes speculation as to reactivation of rheumatic fever, idiopathic pleuropericarditis, or a hypersensitivity reaction. Many clinical features of the syndrome lend weight to the theory that it is reactivation of the rheumatic state. However, a similar clinical picture is observed following operations on congenital heart defects, and several other characteristics tend to negate the speculation.

The authors studied 78 patients who underwent mitral commissurotomy, assessing them in relation to laboratory studies, atrial appendage biopsies at time of operation, and clinical course, attempting to determine the factors involved in the development of the postcommissurotomy syndrome. Five patients operated for coronary artery disease and 10 for congenital heart disease were also studied with the larger group.

Twenty-one patients (27%) developed the syndrome, with the first attack occurring one month after operation in seven cases and as late as 10 months in four cases. Seventeen (80%) developed it within 4 months postoperatively. Other features of times of occurrences are discussed. Therapy was best accomplished by symptomatic treatment, and no greater benefit was obtained by the use of steroids than by analgesics in small doses.

Results of the analysis suggested that the postmitral commissurotomy syndrome is a discrete clinical entity, characterized by fever and vague generalized myalgia with chest pain, with no evidence that it contributes to restenosis of the mitral valve. (Lisan P., Reale, A., Likoff, W., The Postmitral Commissurotomy Syndrome - A Four-Year Clinical, Pathologic and Serologic Study, and its Relation to Restenosis: Ann. Int. Med., 50: 1352-1357, June 1959)

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Please forward requests for Change of Address for the News Letter to: Commanding Officer, U. S. Naval Medical School, National Navel Medical Center, Bethesda, Md., giving full name, rank, corps, and old and new addresses.

## From the Note Book

Nuclear Nursing. The second class in Nuclear Nursing of the U. S. Naval Medical School, National Naval Medical Center, was graduated 2 July 1959. The class of twelve, composed of representatives of the U. S. military services, the Canadian Navy, the Army of the Philippines, the Veterans Administration, and a representative from the University of Colorado, demonstrated the interservice and "people to people" relationships of this particular phase of the expanding field of nuclear medicine.

Peritoneal Lavage. A report from the U. S. Naval Hospital, Oakland, Calif., presents an evaluation of intermittent peritoneal lavage which was both effective and relatively simple with minimal undesirable effects or complications. A readily prepared solution was employed in cases of acute and chronic renal insufficiency, and potassium intoxication. (CDR P. D. Doolan MC USN, et al, Am. J. Med., June 1959)

Peritoneal Dialysis. Complications of earlier methods of peritoneal dialysis are eliminated by a new technique of intermittent dialysis utilizing commercially prepared electrolyte solutions, special catheters, and a "closed system" of infusion and drainage. Conditions treated satisfactorily included acute renal failure, barbiturate poisoning, hepatic coma, and others. (M. H. Maxwell, M. D., et al, Peritoneal Dialysis: J. A. M. A., 20 June 1959)

Syphilis. A comprehensive review of the recent literature on research, clinical manifestations, treatment, and control of syphilis is presented. (H. Beerman, M. D., A. M. A. Arch. Int. Med., March and April 1959)

Lactic Dehydrogenase. At the U. S. Naval Hospital, Bethesda, Md., recent study has evaluated the determination of the lactic dehydrogenase level in the serum as an aid for diagnosis and prognostic follow-up of patients with pulmonary malignancy. This enzyme is elevated in patients with cancer and leukemia. It is also observed to rise during the active process of pneumonia, subsiding to normal when the infection is cured. Tuberculosis and other pulmonary disease apparently do not affect the enzyme level. In a report to the American College of Chest Physicians at a recent meeting in Atlantic City, the applicability of the serial determinations of this enzyme in relation to diagnosis, evaluation of treatment, and recurrence in lung cancer, were demonstrated. (News Release - American College of Chest Physicians, June 1959)

ECSN. In a recent report, Hans Selye presents some of the features of electrolyte-steroid cardiac necrosis (ECSN) in addition to some basic concepts of stress physiology. Also outlined is the mechanism through which "Adaptive hormones" are produced during stress, and the way in which they

participate in producing and preventing nonendocrine diseases. (Postgrad. Med., June 1959)

Deprecusis. Deprecusis, the inability to hear conversation while eating, has been described as a pathognomic sign in otosclerosis, particularly when all evidence of middle-ear disease is absent. Those patients in whom it occurs are considered to be ideal candidates for mobilization or fenestration. (A.A. Scheer, M.D., A.M.A. Arch. Otolaryng., June 1959)

Neomycin Enemas. Recognizing that the ammonia that occurs in the blood originates mainly in the colon as the result of the action of bacteria on nitrogenous substances, the authors first made controlled studies on dogs in relation to the effect of neomycin enemas in reducing the ammonia content of portal blood. Subsequently, a series of patients with ammonia intoxication and hepatic encephalopathies was treated with neomycin enemas producing prompt and consistent reduction in peripheral blood ammonia concentrations and clinical improvement. (J.S. Najarian, M.D., et al, A.M.A. Arch. Surg., June 1959)

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## Course in Occupational Medicine

A two-day course in Occupational Medicine is being offered by the Postgraduate Committee of the University of Maryland School of Medicine. The course will be held in Davidge Hall, second floor, Northeast corner, Lombard & Greene Streets, Baltimore, Md., 1 and 8 October 1959. The tuition for the course is $20. Registration: 9:00 - 9:40 a.m.

The course is designed to be of particular interest to physicians, nurses, plant personnel managers, industrial hygienists, and safety engineers. Medical Corps officers of the Regular Navy and Naval Reserve on duty at Naval activities not too distant from Baltimore may submit an official request for one or both days of this course to the Chief, Bureau of Medicine and Surgery in accordance with instructions contained in BuMed Instruction 1520.8 of 6 February 1956. Requests should reach the Bureau not later than 4 September 1959. (OccMedDispDiv, BuMed)

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## Hard Work Will Never Hurt Morale

Officers reporting for duty in OpNav are invited to suggest any action that they think will improve the Navy. A Captain, reporting recently, accepted the invitation with the following expression—it needs no explanation—it deserves repeating.

"Too many of our Navy people relate morale to such things as love, shore liberty, and the pursuit of happiness, rather than to those elements connected with pride in unit, smartness, and operational capability. With particular regard to the latter, I have recently heard all too often remarks similar to 'We may look like hell, but boy we can operate.' Unfortunately, nothing could be further from the truth. The thought behind the old saying 'I've seen some clean ships that couldn't shoot, but I've never seen a dirty one that could' is just as true now as it ever was.

The above leads me to an answer to the basic question posed. Highest morale results when there is pride in unit, its smartness and its operational capability. These things are attained through various means, the principal ingredient of which is HARD WORK. Uncle Sam's sailors are the world's most willing workers provided it can be demonstrated to them that there is need therefor. Too many of our senior and junior officers are not making it plain that there is such a need. Many, in fact, appear to be afraid to do so, and hesitate to direct necessary work 'because it might be detrimental to morale.' Through positive guidance by our enlightened senior officers, the above tendency must be eradicated in the interests of improving our Navy and its operational capabilities."

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## Recent Research Reports

### Naval Medical Research Institute, NNMC, Bethesda, Md.

1. Role of Density in Populations of Mammalian Reservoirs. Lecture and Review Series No. 59-1, 13 March 1959.
2. Tracer Studies on the Biosynthesis of Cholesterol from $C_2$ Precursors in Active Bullfrog Sciatic Nerve. NM 02 02 00.01.13, 13 March 1959.
3. Transplantation Immunity: Some Properties of Induction and Eduction. NM 71 01 00.03.02, 20 March 1959.
4. Surface Area Techniques and Their Relationship to Body Composition. Lecture and Review Series No. 59-2, 20 March 1959.
5. Some Inorganic Acids, Bases and Salts as Determinants of Innate Immunity in the Mosquito. NM 52 07 00.01.04, 20 March 1959.
6. Hematological Values of Guinea Pigs. Memorandum Report 58-1 related to NM 62 04 00.03, 20 March 1959.
7. An Electronic Control for Coronary Arteriography. Memorandum Report 59-1. NM 71 03 00.01, 9 April 1959.
8. The Endogenous Glycogen of Rat Diaphragm and Its Theoretical Capacity to Support Respiration. NM 72 02 00.02.03, 9 April 1959.

(To be continued in an early issue)

# DENTAL SECTION

## Anniversary Greetings from the Surgeon General

Rear Admiral Bartholomew W. Hogan, Surgeon General of the Navy, has addressed the following letter to Rear Admiral C. W. Schantz, Assistant Chief for Dentistry and Chief, Dental Division, Bureau of Medicine and Surgery:

"Dear Admiral Schantz:

I take great pleasure in sending greetings to you and to all Dental officers in the Navy and Naval Reserve on this 47th Anniversary of the establishment of the Navy Dental Corps.

Much progress has been made since the Naval Appropriation Act of 22 August 1912 authorized the appointment of 'not more than thirty assistant dental surgeons—to serve professionally the personnel of the Naval Service.' For the past forty-seven years the Dental Corps has been an important member of our Navy health team. The care provided by dental officers has earned an increasingly important place in maintaining the health of our Navy and Marine Corps.

During the past year the Navy Dental Corps has made several advancements that have brought special credit to the Navy. One of these was the publication of the first in a series of dental professional extension courses. Another was the formal recognition by the Smithsonian Institution of the part played by the Naval Dental School in developing the high speed air turbine dental cutting device. Of course, the most important was the continued high level of dental support provided to our operating forces and to others who depend on the Navy Dental Corps for treatment.

It is an honor to send congratulations for the achievements of the past year and best wishes for the next to all members of the Dental Corps on this 47th Anniversary.

Sincerely,

/s/

B. W. Hogan
Rear Admiral, MC, USN"

## Schedule for Dental School Training 1959 - 1960

Recognizing the need for a continuous training program to keep Dental officers of the Navy abreast of the latest developments in dentistry and keyed to a high professional level, the U. S. Navy Dental Corps is offering a series of short postgraduate courses to be conducted by members of the staff of the U. S. Naval Dental School, Bethesda, Md. Courses are open to active duty career Dental officers of the Armed Forces. Details regarding quotas and eligibility will be published in the near future. Courses to be presented and schedules are:

| | | |
|---|---|---|
| Oral Surgery | 21 - 25 Sep 1959 | 11 - 15 Apr 1960 |
| Endodontics | 12 - 16 Oct 1959 | 19 - 23 Oct 1959 |
| Oral Roentgenology | 2 - 6 Nov 1959 | 8 - 12 Feb 1960 |
| Oral Pathology | 7 - 11 Dec 1959 | 7 - 11 Mar 1960 |
| Partial Dentures | 11 - 15 Jan 1960 | |
| Periodontics | 29 Feb-4 Mar 1960 | 2 - 6 May 1960 |
| High Speed Orientation | 14 - 18 Mar 1960 | 25 - 29 Apr 1960 |
| Casualty Care | 11 - 15 Apr 1960 | |
| Crown and Bridge | 18 - 22 Apr 1960 | |
| Complete Dentures | 16 - 20 May 1960 | |

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## Fluoridation of Drinking Water

The following excerpt was taken from a statement by Arthur S. Flemming, Secretary of Health, Education, and Welfare, appearing in Public Health Reports, June 1959.

"Why every community with a public water supply has not availed itself of the proved dental health benefits of controlled fluoridation is difficult for me to understand in the light of the following facts:

1. Intensive research over a quarter of a century shows conclusively that water containing a proper amount of fluoride reduces dental decay by about 65%.

2. Equally conclusive research has demonstrated that controlled fluoridation is completely safe, causing no bodily harm of any kind.

3. The American Dental Association, the American Medical Association, and virtually all other scientific and professional organizations having competence in the field have recommended fluoridation of public water supplies.

4. This protection costs only a few cents per person per year. If started in childhood, the protection is effective over a lifetime.

5. Controlled fluoridation does not mean adding a foreign substance to water; all water contains some fluoride. Fluoridation of water as a public health measure simply means controlling the amount of fluoride in a public water supply.

6. Even water containing as much as eight times the amount of fluoride recommended for prevention of tooth decay does not injure a person's health. Too much fluoride in water does cause discoloration of tooth enamel, but has never been known to injure health.

7. Public opinion polls reveal that the majority of people who are informed about fluoridation are favorably disposed to the idea."

NOTE: The Bureau of Medicine and Surgery, in concurring with the desirability of controlled fluoridation of drinking water, has assented to the requests for the fluoridation process at more than sixty facilities throughout the Naval Establishment.

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## Applicants Desired for Dental Technician Training

Applications are desired for courses of instruction in Prosthetic Dental Technician, Basic, Class "C", General Dental Technician, Advanced, Class "B", and Prosthetic Dental Technician, Advanced, Class "B". Applicants must be qualified in accordance with BuMed Instruction 1510.2B. Eligible technicians will be considered for selection to a class convening approximate to their rotational phase in accordance with current SHORVEY/SEAVEY procedures.

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## Dental Officer Elected as Consultant in Research

The Dental Materials Group of the International Association for Dental Research has confirmed Captain G. C. Rader DC USN, Assistant Head, Planning and Analysis Branch, Dental Division, Bureau of Medicine and Surgery, to serve as consultant to the Specifications Committee of that organization. Captain Rader relieved Captain J. T. Mudler DC USN.

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## Policy

The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical

Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

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# RESERVE SECTION

## Medical Department Correspondence Courses

The Medical Department correspondence course, "Manual of the Medical Department, Part II," NavPers 10709-2 (revised 1959), is available for distribution to eligible Regular and Reserve officers and enlisted personnel of the Armed Forces, as well as Officers of the U. S. Public Health Service and Foreign Armed Forces Medical Department personnel.

The course provides Medical Department personnel with authoritative standards, methods, and procedures as they apply chiefly to three areas: one concerns matters of property and fiscal management; a second pertains to the forms and reports used on various occasions and the maintenance of proper records; the third concentrates on the proper application of standards for the physical examination of Navy personnel. Material relating to treaties and conventions which is of special significance for personnel of the Medical Department is also included.

The text constitutes Chapters 15, 16, 23, 25, 26, and Appendix A. Page changes 1 through 6 have been incorporated in this material, reflecting changes in foregoing chapters. Subsequent page changes will be forwarded to enrollees as they become effective. Additional material is taken from Army Regulations 40-503 (new 1956) entitled Physical Standards and Physical Profiling for Enlistment and Induction.

The course consists of eight (8) objective type assignments and is evaluated at eighteen (18) Naval Reserve promotion and/or nondisability retirement points. Naval Reserve personnel who previously completed course NavPers 10709-1, "Manual of the Medical Department, Part II," will not receive additional credit for completing the revised course, NavPers 10709-2. Applications should be submitted via applicant's command, to the Commanding

Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., (Attn: Correspondence Training Division).

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## The Armed Forces Reserve Medal

Executive Order No. 10163 of 25 September 1950, as amended by Executive Order No. 10439 of March 1953, established the Armed Forces Reserve Medal with accompanying appurtenances and devices, for award to members and former members of the Reserve components of the Armed Forces of the United States.

The Armed Forces Reserve Medal may be awarded by the Chief of Naval Personnel or by the Commandant of the Marine Corps to any officer or enlisted member or former member of the Reserve components who completes or has completed a total of 10 years of honorable satisfactory service in one or more of the Reserve components that are enumerated in Title III, Section 306 (c), of Public Law 810, 80th Congress: Provided (a) that such 10 years of service is, or has been, performed within a period of 12 consecutive years, (b) that such service shall not include service in a Regular component of the Armed Forces, including the Coast Guard, but (1) service in a Reserve component which is concurrent, in whole or in part, with service in a Regular component of the Armed Forces shall be included in computing the required 10 years of Reserve service, and (2) any period of time during which Reserve service is interrupted by service in a Regular component of the Armed Forces shall be excluded in computing, and shall not be considered a break in the said period of 12 consecutive years, and (3) that such service shall not include service for which the Naval Reserve Medal or the Marine Corps Reserve Medal has been, or may be, awarded: And further provided, that any medal awarded hereunder shall be of the design distinctive of the Reserve component in which the person to whom it is awarded is serving at the time of the award or in which such person last served.

All honorable service, active or inactive, as a member of a Reserve component prior to 1 July 1949 may be counted for qualifying purposes. All service subsequent to 30 June 1949 must meet the requirements set forth below.

After 30 June 1949 in order to achieve a year of satisfactory federal service as defined in Public Law 810, 80th Congress, as amended, a Naval Reservist must accumulate during each anniversary year a total of fifty (50) retirement points.

An anniversary year commences on 1 July and ends the following 30 June.

Not more than one Armed Forces Reserve Medal may be awarded to any one person, but for each succeeding 10-year period of service as above

described an Hour Glass device with a Roman numeral X superimposed thereon will be awarded on request.

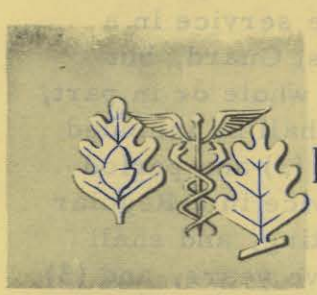
A member of a Naval or Marine Corps Reserve component who is eligible to receive a Naval Reserve Medal or Marine Corps Reserve Ribbon may at his election be awarded, in lieu of such medal, the Armed Forces Reserve Medal.

The Naval Reserve Medal terminated on 12 September 1958 and the Marine Corps Reserve Ribbon will terminate on 17 December 1965. The Armed Forces Reserve Medal shall be awarded in lieu of the above when any 10-year period expires subsequent to the termination dates.

Credit may be accrued toward the Armed Forces Reserve Medal on either active or inactive duty. Service on either the Honorary Retired List of the Naval and Marine Corps Reserve or the Inactive Status List shall not be deemed to be federal service for this purpose.

Applications will be submitted individually in letter form to the Chief of Naval Personnel.

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# PREVENTIVE MEDICINE SECTION

## Communicable Diseases - Worldwide

In 1958, particular attention was paid to serological surveys, and a study group was convened to advise on the development of a worldwide program. The problem of spread of disease to fresh areas was given much attention during the year—for example, the possible invasion by venereal syphilis of areas cleared of yaws, the extension of tuberculosis in new areas of industrialization, the danger of introduction of yellow fever into receptive areas, and the spread of bilharziasis to new irrigation systems.

The Eleventh World Health Assembly called for a greatly extended health research program by the World Health Organization (WHO). In addition to the large program of coordinated research in communicable diseases carried out by cooperating laboratories and institutes all over the world, public health field research received increased attention in 1958. Development of techniques of observational field research is necessary since

control measures have to be adapted to conditions under which they are to be used. Such studies of the population must be done on the spot. They have to be planned on scientific principles and must include controls in order to insure the fact that effects observed are due to measures applied and not to chance variations or extraneous factors. Without much national experience in this field WHO will have to actively participate in and continuously guide this research.

## Venereal Diseases and Treponematoses

There has been a general decline of early venereal syphilis but, in some countries where the decline has been greatest, there have been slight rises in prevalence which call for action by health departments. There is increasing evidence of a reduced susceptibility of gonorrhea to penicillin, but at present it can be met by increased dosage or by use of other antibiotics. Fortunately, at present there is no sign that this low susceptibility of gonococcus is associated with increased clinical complications.

Serious allergic reactions of patients following the use of penicillin are becoming more apparent though still infrequent. How this susceptibility arises, how its presence can be recognized before giving the penicillin, and what can be done to counter the effects are questions of great importance. At present, much further investigation is needed. In a study on untoward penicillin reactions published during the year (Bull. World Health Org., 19: 401-588, 1958) attention is called to the part that may be played by very small quantities of penicillin, such as is likely to be found in syringes inadadequately cleaned after use, in food, or in the environment—as in injection rooms. Reactions also may be due to the aging of procaine penicillin.

In the program against the endemic treponematoses which started in 1948 with WHO assistance, eradication of endemic syphilis in Bosnia-Herzegovina has been achieved. Five years have elapsed since the last infectious case was found in systematic follow-up examinations carried out in districts that were previously highly infected. The field work was gradually integrated with an antimycosis campaign and health centers have been created throughout the area.

The anti-yaws program is continuing satisfactorily and most of the projects in areas where yaws was highly prevalent are now passing over to more general public health work—as rural health services. In most of the remaining endemic areas the prevalence is relatively low. In those, serological surveys will indicate the true prevalence of the infection and what public health measures are needed.

The Expert Committee on Biological Standardization established the third International Reference Preparation of Cardiolipin and authorized establishment of the third International Reference Preparation of Egg Lecithin. It also established the International Standard for Syphilitic Human Serum and

defined the international unit. This will enable national laboratories to express results of their serological tests in terms of international units. A basis has thus been created for international comparability of results.

The revised edition of the "World Directory of Venereal Disease Treatment Centers at Ports" was prepared for publication as part of the Organization's obligation under the Brussels Agreement of 1924 relating to treatment of seafarers in major ports. Reference is made in Chapter 3, under Social and Occupational Health, to study undertaken at the request of the Eleventh World Health Assembly on health problems of seafarers and services available for them.

A meeting of laboratory workers on the Treponema pallidum immobilization (TPI) test was held in Stockholm in connection with the Seventh International Congress for Microbiology, and establishment of an international reference immune serum was recommended.

A report is being prepared on serological tests for syphilis in which small quantities of blood are used. Such tests may be of great value in serological surveys of endemic treponematoses of low prevalence.

The work of the WHO Serological Reference Center at Copenhagen, Denmark, the Venereal Disease Research Laboratory at Chamblee, Ga., and the International Treponematosis Laboratory Center, Baltimore, Md., continued as part of WHO's program of coordination of research.

## Tuberculosis

Preliminary tuberculosis surveys—widely accepted as a means of providing the sound epidemiological basis necessary for the planning of tuberculosis programs—have been continued. Regional survey teams staffed by WHO have assisted countries to establish national survey teams.

The advent of cheap, effective, nontoxic drugs for treatment of tuberculosis has created a great demand for projects in which they are used. Scattered individual efforts and isolated schemes for BCG vaccination, and treatment of institutional, domiciliary, and ambulatory patients are being largely replaced by integrated national programs of control designed on sound epidemiological principles. During 1958, WHO helped a number of countries in Africa and Asia to prepare long-term plans in which a variety of procedures will be used and progress will be assessed by epidemiological methods. Several countries have requested WHO to assist in the pilot stage of their national tuberculosis programs. In these, methods for epidemiogical assessment and extension of the program to the whole community will be worked out and the necessary staff will be trained.

The most profitable part that WHO can take in coordinating research obviously depends on the type of research undertaken. In certain areas, such as biological assay of BCG or classification of mycobacteria, WHO's only function has been to invoke assistance of a number of laboratories, arrange

meetings of directors for the purpose of agreeing on a common protocol and, finally, correlate and consolidate data. To provide necessary knowledge about the epidemiological methods that should be used for elimination of tuberculosis as a public health problem in underdeveloped countries, research institutions must first be developed in several of these countries. To this end WHO has added to its functions as coordinator, assistance in preparation of protocols, collection and analysis of data, and preparation of reports and scientific papers. In addition, assistance has been given by training fellows in epidemiology and biostatistics at the WHO Tuberculosis Research Office in Copenhagen and by practical training in collection of data in the field.

Coincident with training of national tuberculosis survey teams, much work has been done to simplify and standardize collection and analyses of field data. In cooperation with a number of national field projects and institutions, WHO has coordinated major epidemiological studies on nonspecific allergy to tuberculin, global distribution of the different types of mycobacteria pathogenic for man, evolutive aspects of pulmonary tuberculosis, and communicability of tuberculosis as related to high and low prevalence. A special feature of great epidemiological importance was the biological standardization and issue of 700 gm. of a new batch of purified tuberculin—PPD, RT-23. This quantity will be enough to meet world demand for many years. The issue of the material coincides with the important improvement, originating in studies coordinated by WHO, and in stabilizing tuberculin dilutions with Tween diluent.

A BCG vaccine that would retain its biological properties over a long period of time under adverse climatic conditions would help to consolidate many (United Nations International Children's Emergency Fund) UNICEF/WHO assisted mass BCG campaigns. Studies coordinated by WHO in European laboratories and African field projects have shown that a freeze-dried glutamate vaccine produced in Japan gives promising results. These important studies will be pursued and extended to other types of freeze-dried vaccine. This should eventually lead to establishment of minimum requirements for biological properties of BCG vaccines.

In a number of national pilot projects, WHO coordinated collection of data on efficacy of antituberculosis drugs and methods for long-term self-administration.

## Virus Diseases

### Influenza and Respiratory Virus Diseases

A close watch was maintained for any continuation of the influenza pandemic that swept the world in 1957. Few countries had definite epidemics which were due to Asian virus in the early months of 1958, but in several a serious increase of mortality from respiratory disease and of mortality from

all causes was observed. This increase often equalled—in some countries exceeded—the figure for the pandemic wave itself. It appeared to be associated with continued activity of Asian virus which caused sporadic cases, especially in older age groups. Among these, cardiac and other pulmonary conditions being more prevalent, mortality was higher than would have been expected from over-all incidence of influenza. Certain studies suggested that the people affected early in 1958 were predominantly elderly persons with limited contacts with children (who were most extensively involved during the pandemic) and that it was because of this that they escaped infection during the main wave. No evidence was obtained that the virus itself was becoming more virulent.

During the 1958 winter in the Southern Hemisphere no reports were received of extensive activity of Asian virus. A few local outbreaks due to type B were detected. With coming of winter in the Northern Hemisphere, influenza centers were alerted to maintain a close watch on developments, but at the time of reporting nothing of importance had occurred.

The Expert Committee on Respiratory Virus Diseases met in Stockholm in August to consider lessons learned during the pandemic and results of the extensive work carried out since the meeting of the Expert Committee on Influenza in 1952. The Committee made recommendations on nomenclature of the main groups of influenza A viruses of human origin. It discussed mechanisms which bring about antigenic changes and their significance in control of influenza by vaccination and reviewed experience during the pandemic, including different methods of spread. The possible role of certain animals in epidemiology was considered at a joint meeting with the Joint WHO/FAO (Food and Agriculture Organization) Expert Committee on Zoonoses, at which was discussed a report on studies initiated by WHO on the presence of antibodies to the A2 virus in sera of animals collected in 25 countries, both before and after the pandemic wave.

A large part of the Expert Committee's report was concerned with prophylaxis. The reports before the Committee indicated that the two types of vaccine now available—inactivated vaccine widely used in Europe and Northern America and live virus vaccine developed in the Union of Soviet Socialist Republics—seemed to be about equally effective, producing a two-thirds reduction of incidence; but further trials of live virus vaccine were necessary for more precise evaluation. The Committee also noted that sero-prophylaxis had been used in the Soviet Union with results reported as favorable. The Committee recommended that the WHO influenza program should be extended as far as possible to countries not at present cooperating and that influenza centers should be brought into closer relationship with national health authorities. Technical developments in the laboratory were considered in detail, including a new strain-specific complement fixation test which has many advantages over tests now being used. The Committee reviewed the mass of new knowledge on other respiratory

virus diseases which are a major cause of morbidity in all countries. It was recognized, however, that viruses so far discovered were responsible for only a small fraction of the total respiratory disease due to viruses.

Poliomyelitis.

During the year particular attention was devoted to the problems of live poliovirus vaccines, especially those concerning safety and stability. In most countries favorable impressions of effectiveness of inactivated virus vaccines were reinforced. However, in Israel a serious type 1 epidemic appears to have largely overcome the protection afforded by the vaccine. The precise reasons for this failure are being sought, but the experience should be regarded as a warning that available vaccines are not good enough, especially against type 1 virus. In accordance with the policy of expanding the poliomyelitis program to cover diseases due to other enteroviruses, type-specific sera for a number of these viruses were supplied to cooperating laboratories.

Arthropod-Borne Viral Infections

On the occasion of the Sixth International Congress on Tropical Medicine and Malaria held in Lisbon, September 1958, an informal meeting of persons actively engaged in work on arthropod-borne viruses was organized under the auspices of WHO. The purpose of the meeting was to give such workers an opportunity to discuss problems of mutual interest and exchange ideas and information; also to obtain advice on how WHO could best coordinate research and otherwise help in the study of arthropod-borne virus infections as public health problems. Great interest was expressed in the role of WHO as a coordinating and research promoting agency.

Smallpox

Technical advice and consultant services on dried smallpox vaccine production, according to the method recommended by WHO, were provided for several countries interested in starting production of such vaccine.

The Eleventh World Health Assembly requested the Director-General to study financial, administrative, and technical implications of a program for eradication of smallpox and to report to the Executive Board at its twenty-third session. Technical advice and consultant services on planning and organizing smallpox eradication services were also given to certain countries on request.

An epidemic of smallpox broke out in Pakistan during the year and in response to an urgent request for help from its government, WHO provided two million doses of dried smallpox vaccine.

Public Health Laboratory Diagnostic Techniques for Viral and Rickettsial Diseases

An international training course in public health laboratory techniques for virus and rickettsial diseases was organized at the Institut Pasteur, Coonoor, India, in December 1958. The importance and potentialities of the viral and rickettsial diagnostic laboratory as an integral part of the

public health services of a country were emphasized in this course. The organization, functions, appropriate design, and equipment for this type of laboratory were explained, and the basic techniques of viral and rickettsial work were demonstrated and carried out by the fellows. Attending the course were fellows from 13 countries in the South-East Asia, Eastern Mediterranean, and Western Pacific Regions.

## Immunological and Other Surveys

A Study Group on Immunological and Hematological Surveys was convened in December 1958 to consider means of obtaining the maximum amount of information from surveys based on collection of blood samples from populations. Most serological surveys have been designed for a single purpose. Recently the sera collected have been examined for antibodies of several communicable diseases, both viral and bacterial, thus providing more information with the additional cost being solely that of the additional laboratory tests.

The Study Group considered an even broader approach than this, proposing the collection of blood in such a way that the substances in blood other than antibodies should also be examined. These include hemoglobin and hematocrit determinations of importance in anemia, studies of blood groups, and abnormal hemoglobins of importance in the study of human genetics, and various nutritional-biochemical determinations of importance in nutrition and various chronic diseases.

The Group concluded that the public health importance of surveys could be greatly increased by this broad approach and that it was a practical proposition. The report contains details of the statistical, epidemiological, and technical aspects of such surveys and recommends early initiation of pilot studies to determine whether the technical procedures suggested can be achieved in practice.

## Bilharziasis

One of the main purposes of large-scale projects against bilharziasis in Iraq and the Philippines is systematic development of efficient procedures and methods for bilharziasis control. Techniques for determining baselines from which to measure future progress and methods of evaluating the public health significance of bilharziasis have been worked out. An intricate biosocial problem such as bilharziasis calls for a broad ecological approach, and in the Philippines steps have been taken to integrate the program of bilharziasis control into general programs for community development.

An important objective has been to prevent the spread of bilharziasis in newly irrigated areas. A survey team was organized to visit regions where bilharziasis is endemic and to obtain data on which to base the design

of irrigation canals that will be unfavorable for snail breeding. Ecological studies of snail habitats were again an essential part of projects against bilharziasis. The information obtained is also relevant to work against other communicable diseases of man and animals that affect national economies.

The task of training a staff for bilharziasis control received much attention. An inter-regional training course of 7 weeks was organized in Cairo for public health administrators, engineers, epidemiologists, and biologists from African, South-East Asia, Eastern Mediterranean and Western Pacific Regions. Four experts gave lectures on epidemiology as applied to bilharziasis, on zoology and ecology in relation to malacology and limnology, sanitary engineering, and health administration.

A special number of the "Bulletin of the World Health Organization" on bilharziasis contains some epidemiological studies submitted by WHO consultants to the African Conference on Bilharziasis held at Brazzaville in 1956, and a number of papers on other aspects of the disease.

## Diarrheal Diseases

WHO is planning a long-term study of this group of diseases which affect the health of all regions, cause much infant mortality, and have important socio-economic effects.

A Study Group on Diarrheal Disease comprising epidemiologists, bacteriologists, a pediatrician, and a public health administrator, was convened by WHO in Geneva in November 1958. This Group considered the specifications which should be included in a study of diarrheal diseases and the need for internationally comparable data. It reviewed the epidemiology of those diseases and their present status in relation to world health and recommended types of investigation appropriate to different areas. The Group also discussed measures for control of diarrheal diseases, including sanitation and other measures for preventing morbidity in infants and in children under 5 years of age in rural areas.

This complex group of diseases are due to a wide variety of etiological agents and their control requires a combination of sanitation, nutrition, maternal and child health work, and health education. An essential, preliminary to control work in any area, is epidemiological investigation to determine which are the more important causes of transmission and which methods of control will most effectively bring about a progressive reduction of mortality and morbidity.

## Cholera

Serious outbreaks of cholera occurred during the year in Nepal and Thailand and considerable increases in the number of cases reported in India

and East Pakistan. In response to requests for assistance from the governments of Nepal and Thailand, WHO supplied cholera vaccines to help combat epidemics.

A consultant visited the chief laboratories dealing with cholera research in India to gather information on the epidemiological and basic research into the cause of endemicity in areas of India.

## Trachoma

In many trachomatous areas few data are available, apart from hospital statistics; well planned surveys are needed to provide essential epidemiological information. Where trachoma is endemic, it is almost invariably contracted in early childhood so that screening of all school children gives a first indication of its prevalence and distribution. Where possible, this is followed by an epidemiological study of: community and family patterns of the disease; mean age at onset; age, sex, and occupational groups of those who are principal sources of infection; and local environmental factors which favor transmission of infection. Often, such a complete study is beyond the resources of national health services and, as a less satisfactory but still useful alternative, a survey is made of families and immediate neighbors of all known cases of trachomatous children found during school inspections and all cases at hospitals and dispensaries. This information serves to plan an initial pilot project. In some large territories previously unsurveyed for communicable eye diseases random sampling of rural communities is carried out as a first stage in the organization of a topographical map of the disease.

Trachoma is closely related to standards of living and hygiene; until these standards can be improved collective treatment and health education are the only practical means of attack. The immediate objective is to develop through field studies and trials techniques which are effective, practicable on a large scale, and within the economic resources of the country.

A further objective is to discover means of controlling the widespread seasonal epidemics of conjunctivitis which in parts of Africa and Asia present an even greater problem than trachoma and a greater threat to vision.

The program of coordinated research in virological and bacteriological studies of the agents of trachoma and the associated conjunctivitis was continued during 1958, and further assistance was given to institutes to develop their facilities for research. Recently, claims have been made, apparently well substantiated, that trachoma virus has been grown in serial culture. This raises hope that there may be important advances in trachoma control. Once the infective agent is available in quantity in pure form, many new possibilities will be opened up.

Considerable progress has been made with simpler and cheaper methods of treatment which has enabled several control projects to be greatly extended.

To determine the test schedules of treatment and to adapt them to local field conditions, a continuing program of research with new drugs is necessary. WHO is assisting in planning and coordinating such trials in several countries and in assessing the results.

Extensive epidemiological studies on trachoma and its associated infections have recently been completed in India and Indonesia. The results of a detailed analysis of the findings should lead to more economical and effective programs of control in those countries. A similar procedure would be desirable in other trachomatous areas, but such field inquiries are often limited by a shortage of adequately trained and experienced epidemiologists.

## Onchocerciasis

The need for further research has been clearly shown in WHO's work on onchocerciasis during 1958. Epidemiological studies are required because in different areas—even in different localities of the same area—there are enormous variations in the percentage of blindness and serious eye lesions attributed to onchocerciasis.

Experience shows that even if the eye lesions among persons infected by Onchocerca volvulus are fully described and known, there are some differences of opinion among ophthalmologists as to how far onchocercal infection is responsible for some lesions, particularly those of the optic nerve and the posterior segment of the eye. Such differences of opinion led WHO to initiate a program of coordinated research on the etiology of lesions of the posterior segment of the eye. Some interesting histopathological results have been obtained.

A WHO training course on the ophthalmological aspects of onchocerciasis was held at the Institute of Tropical Ophthalmology in Bamako, French West Africa in August 1958 for ophthalmologists from countries where onchocerciasis is a serious public health problem. The course was followed by practical demonstrations of surveying techniques in the neighboring villages.

Onchocerciasis was the main subject discussed at the symposium on ocular parasitoses, organized by the French Society of Ophthalmology in May 1958, and at which WHO was officially represented.

## Leprosy

A review of internationally assisted work for leprosy control was undertaken in 1958. Consultants visited several projects in the field to prepare material for consideration at two meetings on leprosy organized by WHO during the year—the WHO leprosy seminar at Belo Horizonte in July and the Inter-Regional Leprosy Conference held in Tokyo in November. The latter meeting was convened in pursuance of a resolution of the Ninth World Health Assembly which requested the Director-General to study the feasibility

of holding a conference in 1958 for the discussion of leprosy control in countries with similar epidemiological, social, and administrative problems. The progress made in most of the projects, control methods employed, the results obtained, and difficulties encountered were discussed at the meetings. The participating countries presented reports on problems met in their leprosy control programs and discussions on general problems of leprology and leprosy control were introduced by consultants. Information was collected from countries in Africa in preparation for a WHO inter-regional leprosy conference to be held in Africa in 1959.

The information collected in 1958 confirms the following: satisfactory clinical and bacteriological results observed in patients treated by sulfones in institutions can also be obtained in mass treatment of outpatients; prescribed treatment schedules generally give most satisfactory results when diagnosis and treatment have been early; organization of early diagnosis and mass treatment with abolition of permanent and indiscriminate segregation can be successfully undertaken and will be well accepted by the people concerned. Proof was also obtained that these measures are well within the resources of most of the countries interested.

Many WHO-assisted projects provided research data on clinical and bacteriological results of different treatments, percentages of relapses and leprosy reactions, percentage of patients not regularly following the prescribed treatments, and reasons that influenced the patients.

## Plague

An Expert Committee on Plague met in Geneva in September 1958 to review the situation of plague throughout the world in light of epidemiological findings—particularly on wild rodent plague—and of advances in therapy and prophylaxis. The Committee considered epidemiological studies assisted by WHO in India, Indonesia, and certain Eastern Mediterranean countries and results of research work mainly in Kenya, Belgian Congo, the United States, and the Union of Soviet Socialist Republics. The Committee recognized the important part played by resistant species of rodents in many areas in maintaining plague and accepted the view that this maintenance depends on ecological interaction of susceptible and resistant rodents living close together. Therefore, the "reservoir" of plague appears to be a complex of several species and their fleas which varies in different areas. The difficulty of obtaining a sound knowledge of local conditions is increased by the fact that the same species of rodent may, in different areas, have different habits and, therefore, variable importance in the epidemiology of plague.

Consequently, while modern techniques can generally control human outbreaks of plague and can often prevent spreading of the disease from rodents to man in areas where existence of an enzootic condition is known, careful research is necessary to detect the presence of such enzootic foci

and to decide whether measures of control are possible and expedient. Important work done in the Union of Soviet Socialist Republics has shown that large-scale campaigns aimed at eradicating reservoirs can only be achieved by a complete knowledge of all factors involved. Such campaigns, however, are not easily organized in all countries where wild rodent plague still presents a potential danger because of cost and difficulty in carrying out necessary preliminary research under prevailing conditions.

## Relapsing Fever

Studies of strains of louse-borne relapsing fever, undertaken in the past by the Institut Pasteur in Tunis and assisted by WHO, progressed during the year and their results were published in Bulletin of the World Health Organization. The objective of the research was to isolate strains of Borrelia recurrentis that cause the considerable number of cases reported yearly from Ethiopia and other countries of the East African high plateau, and to compare them with strains that produced the epidemic observed after World War II in several countries of north, central, and east Africa, Europe, and the Eastern Mediterranean.

This led to further studies on endemicity of the louse-borne and tick-borne forms of relapsing fever in the East African highlands where they are a serious public health problem and a potential danger to much larger areas.

## Veterinary Public Health

A Joint WHO/FAO Expert Committee on Zoonoses met in Stockholm in August. In the light of advances during the past 8 years, it suggested some modification of the recommendations made at a meeting in 1950 in regard to bovine tuberculosis, anthrax, psittacosis, Q fever, and hydatidosis.

The Committee dealt in some detail with salmonellosis which is widespread in man and animals throughout the world and is increasing. They discussed the most common types of salmonella infection, the animals principally infected, the foods most liable to contamination, and the methods for control and prevention of the disease. Another large part of the Committee's report dealt with the epidemiology, diagnosis, prevention, and treatment of leptospirosis. It considered more briefly arthropod-borne viral infections, animal influenza and its possible relations to human influenza, dermatophytosis, listeriosis, tularemia, larva migrans, cat-scratch disease, and the problem of emerging zoonoses.

Comparative epidemiological studies of some conditions in animals may provide useful information about analogous conditions in man, and the best means of exploring this possibility are being considered; for example, by studies on cardiovascular diseases, cancer, and radiobiology.

Brucellosis

A training course on brucellosis was jointly organized in Elisabethville, Belgian Congo, by the Commission for Technical Cooperation in Africa South of the Sahara, FAO, and WHO, for physicians and veterinarians from countries and territories in Africa.

Studies were continued in Spain, Israel, Malta, and Tunisia of the use of killed and of modified living vaccines for control of brucellosis in sheep and goats. These experimental studies gave conclusive evidence of the value for this purpose of a living modified Brucella vaccine (strain Rev. 1) for control of this disease in small ruminants. Large field trials with this strain are being planned at the Pan American Zoonoses Center, Azul, Argentina, and in other countries.

The fifteen FAO/WHO Brucellosis Centers in different countries continued work on diagnostic procedures in man and animals, therapeutic studies in man, and bacteriology of the Brucella organism.

Several articles on brucellosis were published during 1958; these included a discussion of methods of preparing monospecific Brucella sera, a description of the use of gel diffusion precipitin plates in the study of Brucella, a summary of the results of experiments with a recently developed strain of Brucella melitensis for use as an immunizing agent, and two articles on the problem of species designation in the genus Brucella.

Rabies

Coordinated research was continued on human vaccination and the use of therapeutic serum according to different schedules. Several thousand specimens of human sera from such studies were distributed to laboratories in France, Israel, Nigeria, Spain, and the United States for testing to determine response to these different schedules. The aim is to find reduced schedules of vaccine and serum for therapeutic purposes and to develop a schedule of pre-exposure immunization for man.

Studies were continued on local treatment of wounds and on use of vaccines in animals. A statistical analysis of the effectiveness of rabies reporting systems was begun in order to improve the present knowledge derived from individual case histories of exposure to biting animals and the results of therapy.

Leptospirosis

International reference sera for 19 serotypes were officially established by the Expert Committee on Biological Standardization. These reference sera were distributed to the six WHO/FAO Leptospirosis Reference Laboratories which on request will supply them—along with homologous cultures—to national laboratories. A second batch of 18 major serotypes is being prepared in three of the reference laboratories.

Animal Influenza

In July 1957, veterinary services in 25 countries were requested to take blood specimens from horses and swine in different areas, and to take

a second specimen from the same animals if possible about 3 months after the human influenza epidemic had subsided. The immediate purpose of the survey was to determine if the Asian strain of the virus would establish itself in domestic animals known to be susceptible under natural conditions to other strains of type A virus. Also it was hoped to gain some preliminary information about other type A strains, Shope and A-equine Prague 56, in swine and horses respectively.

Most of the countries approached were able to cooperate in the survey. Some were able to obtain paired serum specimens from the same animal; others could obtain only one. Similarly, some countries took samples in widely separated areas; others could obtain specimens only from a limited area. Most of the serum samples were kept frozen until they were examined in WHO Influenza Centers early in the summer of 1958.

The Expert Committee on Respiratory Virus Diseases and the Joint WHO/FAO Expert Committee on Zoonoses jointly discussed available results of the study. Although too early to evaluate the significance of the findings, the Commitees considered the preliminary survey information valuable and recommended that studies be continued and extended to clarify the role of animal influenza in epidemiology of human influenza.

Toxoplasmosis

Coordinated studies were begun on diagnostic and survey procedures for toxoplasmosis. Plans were made to prepare a large batch of standard reference serum for testing in various laboratories to determine if use would bring more uniformity into diagnostic procedures including the Sabin-Feldman dye test and the widely-used complement fixation test. Studies were begun on the possible value of a newly developed hemagglutination test for toxoplasmosis.

Other Zoonoses

Guidance was given to many institutes in different regions on laboratory techniques and on the control of Q fever, hydatidosis, bovine tuberculosis, salmonellosis, tick-borne encephalitis, psittacosis, tularemia, and anthropod-borne viral infections.

Food Hygiene

WHO collaborated with FAO in preparation of a monograph to be published by FAO on meat handling and construction of rural abattoirs in less developed countries. Work was started in collaboration with FAO and UNICEF on a monograph on milk hygiene. The Inter-Agency Working Group on Milk and Milk Products reviewed projects on milk hygiene being carried out in various countries with assistance from FAO, WHO, and UNICEF, and procedures were formulated for future surveys in areas where milk programs will be developed. (The Work of WHO 1958, Official Records of the World Health Organization No. 90, March 1959)

## Occupational Medicine Two-Year Course

The Professional Division of the Bureau of Medicine and Surgery has allocated one (1) training billet in the field of Occupational Medicine for a Medical officer in the rank of Commander or below. This course is to commence with the forthcoming academic year.

Staff Medical Officers of Fleets and Forces, District Medical Officers, Commanding Officers, and Senior Medical Officers are requested to forward immediately the name of any outstanding Medical officer interested in the field of Occupational Medicine to the Bureau of Medicine and Surgery with an advance copy to Code 316.

If selected, the Medical officer may apply to a school of his own choice, provided it has been approved for training in Occupational Medicine by the American Medical Association Council on Medical Education and Hospitals.

(OccMedDispDiv, BuMed)

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